

LEH-35B-98  
U.S. Ser. No. 09/493,891

## AMENDMENTS

### To the Claims:

This listing of claims will replace all prior versions, and listings, of the claims in the application:

### Listing of Claims:

3. (Currently Amended) A method for the synthesis of a lactone of polysaccharide carboxylic acids which comprises (i) providing the free acid form of the polysaccharide as a finely-powdered, anhydrous carboxylic acid with minimal sodium and potassium carboxylate content; (ii) lactonizing said polysaccharide by thermal dehydration ~~for a period greater than five hours~~ in an anhydrous non-nucleophilic solvent; and (iii) collecting the resulting lactone product, wherein said polysaccharide carboxylic acid is selected from the group consisting of carboxy- and carboxymethyl cellulose, carboxy- and carboxymethyl cyclodextrin, carboxy- and carboxymethyl starch, carboxy- and carboxymethyl chitosan, and pectin.
5. (Currently Amended) A method according to Claim 3 ~~which further comprises conducting said lactonization in a refluxing media~~ wherein the solvent is selected from the group consisting of xylene, toluene, diglyme, and acetonitrile.
6. (Currently Amended) A method according to Claim 5 wherein the polysaccharide carboxylic acid is carboxymethyl-cellulose and the solvent is diglyme. lactonizing consists of:
  - (i) ~~suspending the carboxymethyl cellulose in anhydrous diglyme;~~
  - (ii) ~~heating the suspension to about 150°C for about 24 hours;~~
  - (iii) ~~removing the diglyme solvent; and~~
  - (iv) ~~collecting the lactone.~~

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7. (Currently Amended) A method according to Claim 5 wherein the polysaccharide carboxylic acid is pectin acid and the solvent is toluene, ~~lactonizing consists of:~~

- ~~(v) (i) — suspending the pectin in anhydrous toluene;~~
- ~~(vi) (ii) — heating the suspension for about 24 hours;~~
- ~~(vii) (iii) — removing the toluene solvent; and~~
- ~~(viii) (iv) — collecting the lactone.~~

8. (Currently Amended) A method according to Claim 5 wherein the polysaccharide carboxylic acid is carboxymethyl-starch and the solvent is diglyme, ~~lactonizing consists of:~~

- ~~(i) — converting the starch to the free acid;~~
- ~~(ii) — suspending the free acid in anhydrous diglyme;~~
- ~~(iii) — heating the suspension;~~
- ~~(iv) — removing the diglyme solvent; and~~
- ~~(v) — collecting the lactone.~~

9. (Previously Amended) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 3.

15. (Canceled)

16. (New) A polysaccharide carboxylic acid lactone product made according to a method for the synthesis of a lactone of polysaccharide carboxylic acids comprising:

- (i) providing the free acid form of the polysaccharide as a finely-powdered, anhydrous carboxylic acid with minimal sodium and potassium carboxylate content;
  - (ii) lactonizing said polysaccharide by heating in an anhydrous non-nucleophilic solvent;
- and
- (iii) collecting the resulting lactone product,

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wherein said polysaccharide carboxylic acid is selected from the group consisting of carboxy- and carboxymethyl cellulose, carboxy- and carboxymethyl cyclodextrin, carboxy- and carboxymethyl starch, carboxy- and carboxymethyl chitosan, and pectin, and wherein said polysaccharide carboxylic acid lactone is free of residual chemical activators and promoters.

17. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 16, wherein said polysaccharide carboxylic acid is carboxymethyl cellulose.

18. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 16, wherein said polysaccharide carboxylic acid is pectin.

19. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 16, wherein said polysaccharide carboxylic acid is carboxymethyl starch.

20. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 16, wherein said polysaccharide carboxylic acid is carboxymethyl cyclodextrin.

21. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 16, wherein said polysaccharide carboxylic acid is carboxymethyl chitosan.

22. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 16, wherein said polysaccharide carboxylic acid is carboxy starch.

23. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 3, wherein said polysaccharide carboxylic acid is selected from the group consisting of carboxy- and carboxymethyl cyclodextrin, carboxy- and carboxymethyl starch, carboxy- and carboxymethyl chitosan, and pectin.

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